

Fig. 1A

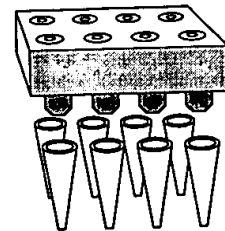


Fig. 1B

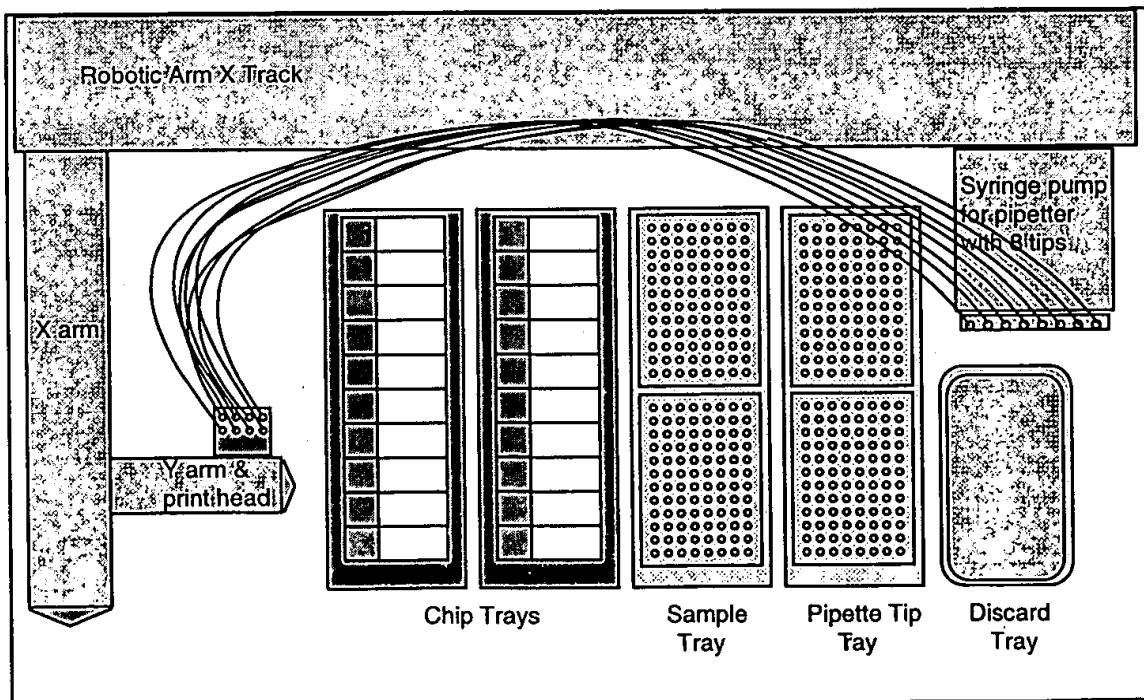
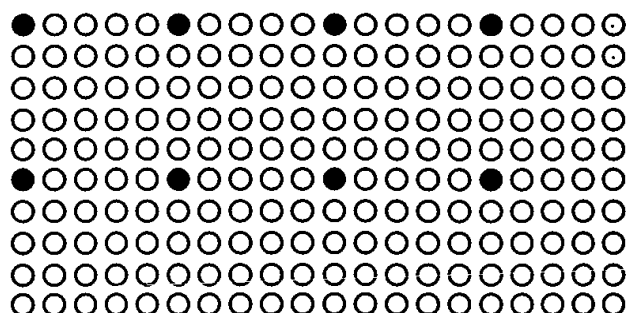
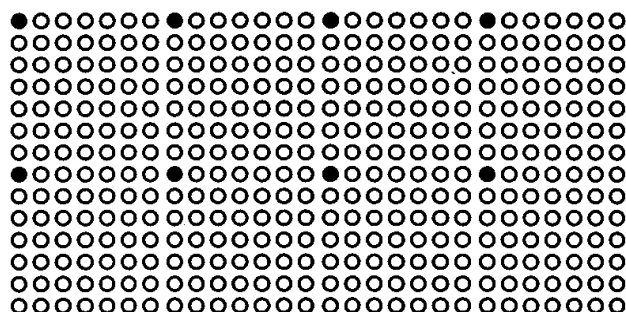


Fig. 2



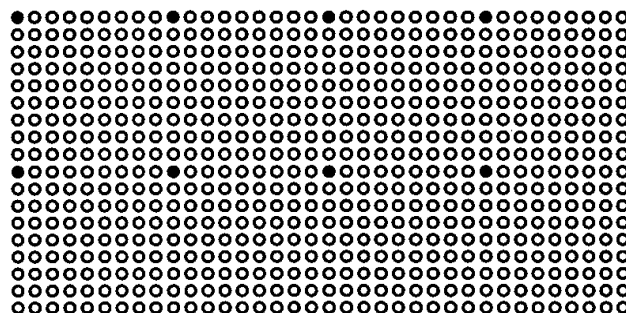
— 1.8 mm CTC

400 nL spots
spot diameter 1.2 mm
print spacing 1.8 mm CTC
25 passes = 200 spots
CTC area of 16.2 mm x 36 mm



— 1.285 mm CTC

200 nL spots
spot diameter 0.8 mm
print spacing 1.285 mm CTC
49 passes = 392 spots
CTC area of 16.71 mm x 34.71 mm



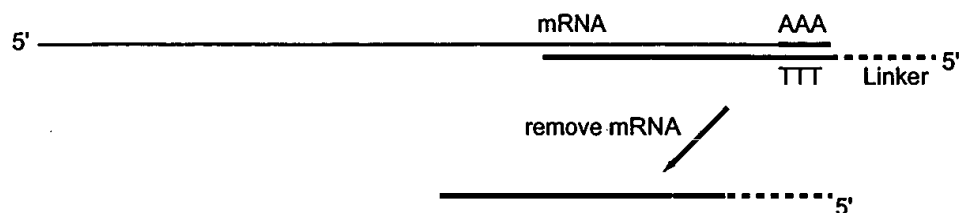
— 1.0 mm CTC

100 nL spots
spot diameter 0.6 mm
print spacing 1.0 mm CTC
81 passes = 648 spots
CTC area of 17 mm x 35 mm

Black dots represent the first print distribution with a 8 tip printhead having 2 rows of four tips. 50 nL spots similarly dispensed would achieve ~2500 gene spots in the same printing area.

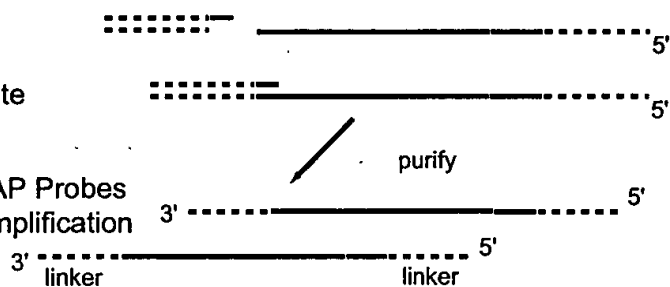
Fig. 3

Step 1: Copy target segment by RT with poly-T primer plus GeneTAG linker



Step 2: Ligate Random Adapter forming second GeneTAG linker/primer site

Double Linker WRAP Probes suitable for PCR amplification



Step 3: PCR amplify

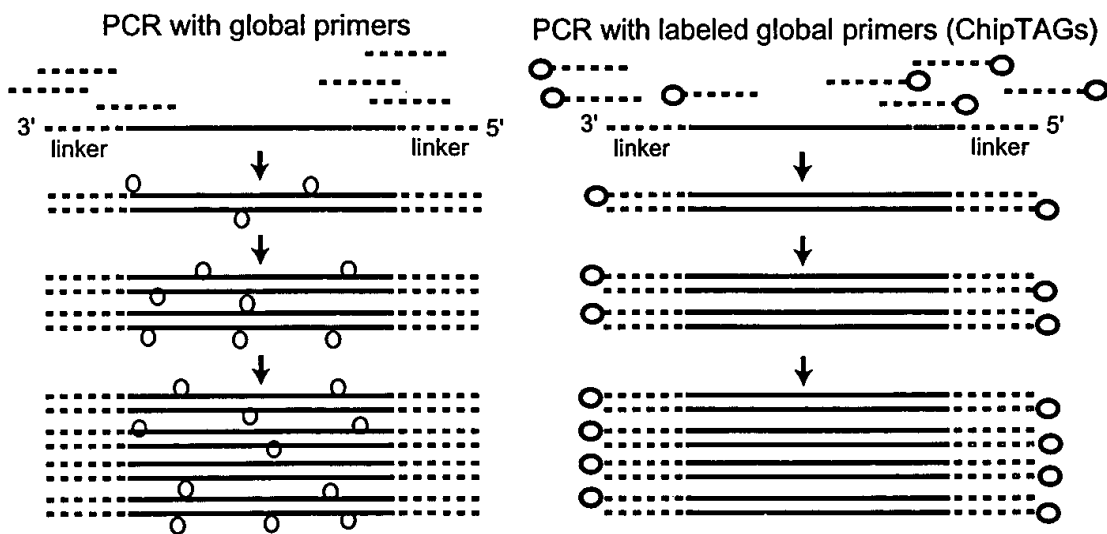


Fig. 4

Hand spotted miniarray test
with P-10 micropipetter and
Cy3 and Cy5 labeled samples
on polylysine coated slides
spots ~3 mm CTC

Upper Row

600 nL, 400 nL, 200 nL

1.35mm, 1.2mm, .78 mm

Mid Row

800 nL, 400 nL, 200 nL

1.78mm, 1.2mm, .78mm

Lower Row

800 nL, 400 nL, 200 nL

1.78mm, 1.2mm, .78mm

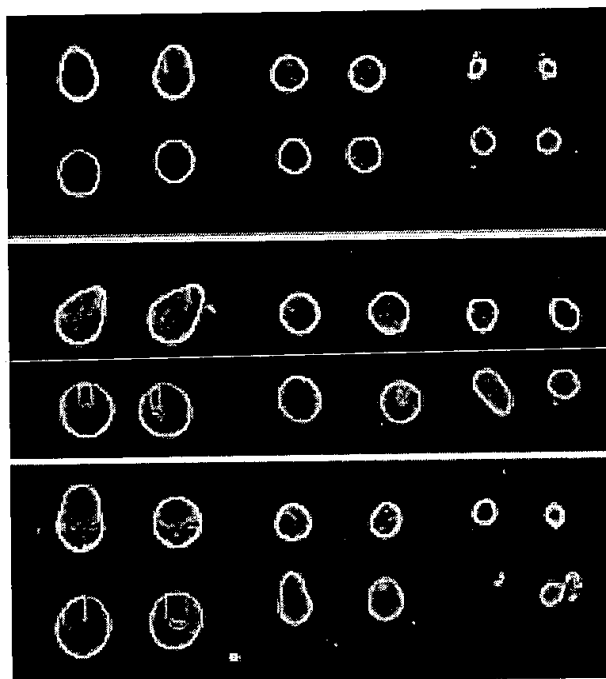


Fig. 5

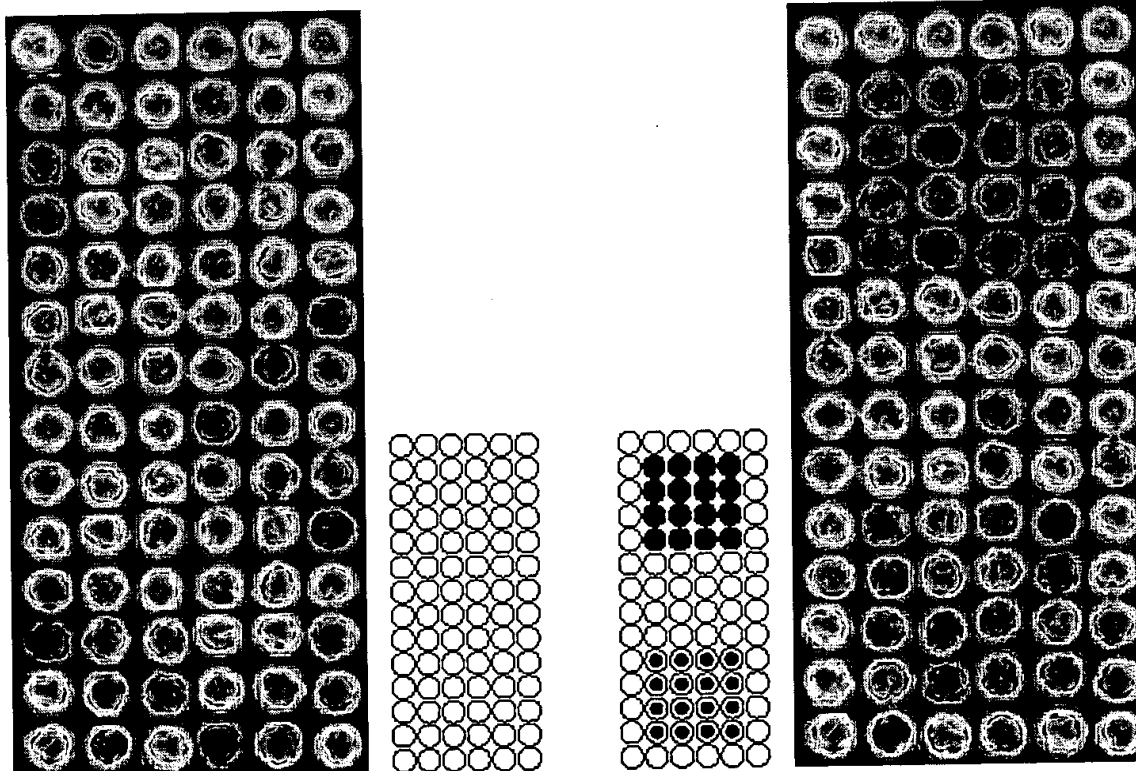
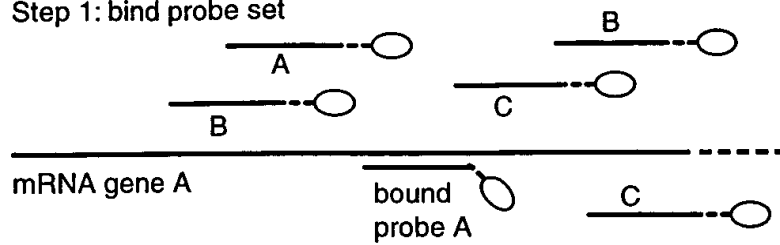
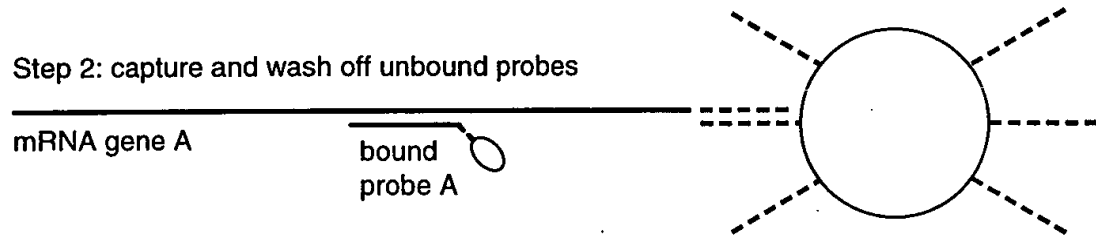


Fig. 6

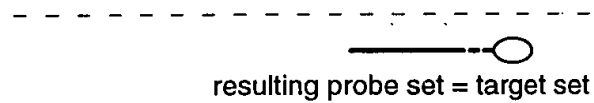
Step 1: bind probe set



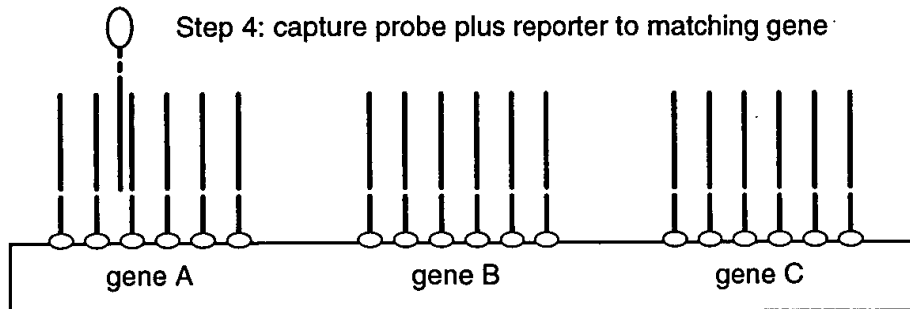
Step 2: capture and wash off unbound probes



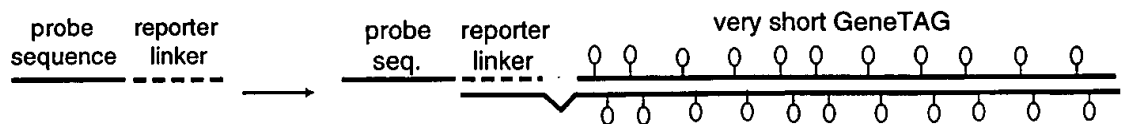
Step 3: degrade RNA



Step 4: capture probe plus reporter to matching gene



Alternate probe form: reporter bound separately to reporter linker



Diagnostic Miniarray genes arranged to generate a simple stoplight pattern if the condition is present

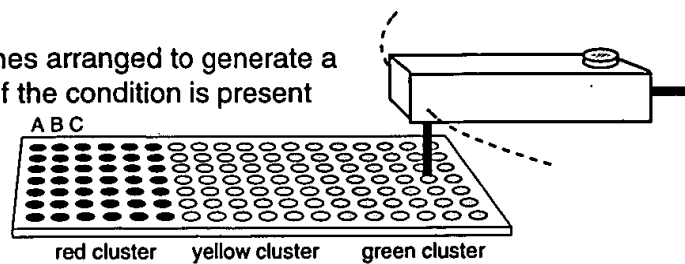
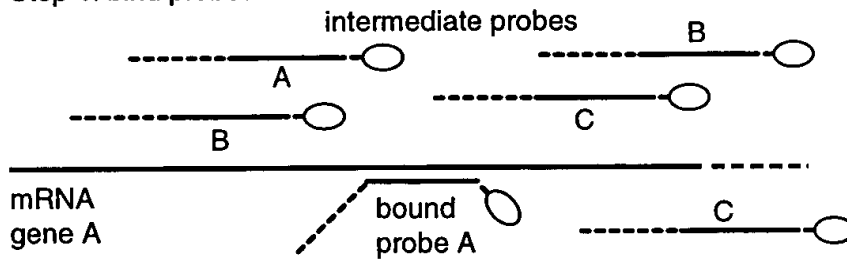
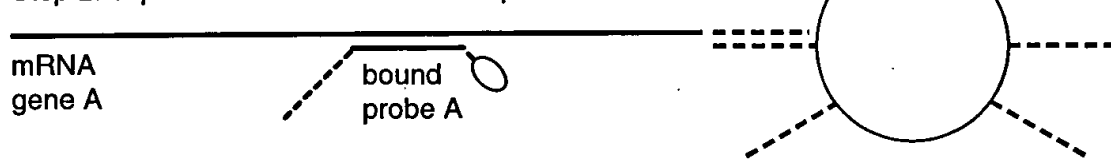


Fig. 7

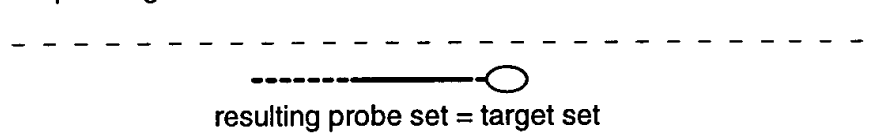
Step 1: bind probes



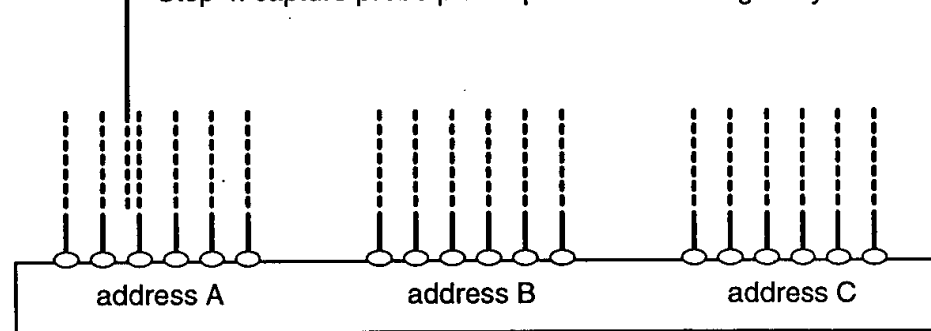
Step 2: capture and wash off unbound probes



Step 3: degrade RNA

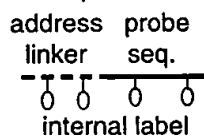


Step 4: capture probe plus reporter to matching array address

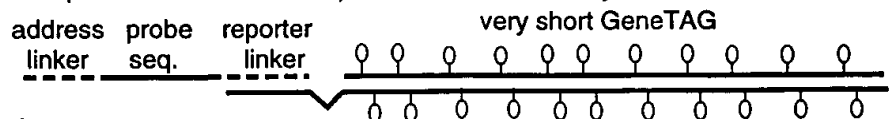


Alternate single Intermediate Probes:

a. labeled probe with address linker



c. reporters are bound after probes bind to miniarray address



b. unlabeled probe with address linker and reporter linker

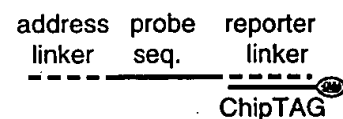
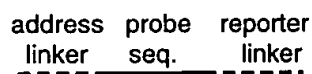
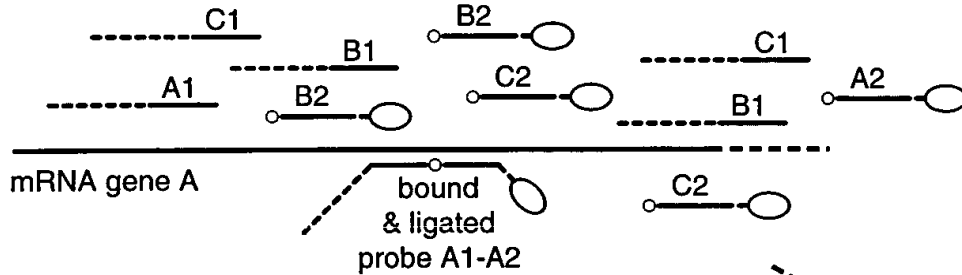


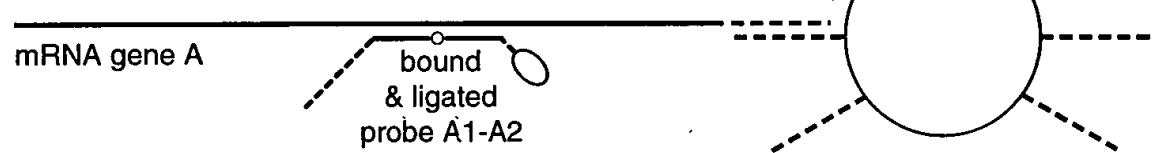
Fig. 8

Using intermediate half-probes ligated together on the target sequence:

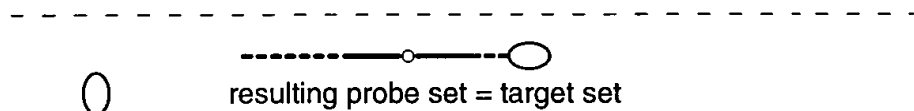
Step 1: bind and ligate paired half-probes



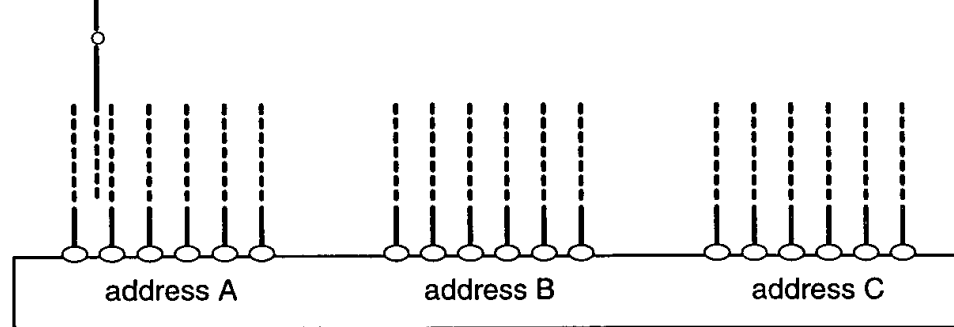
Step 2: capture and wash off unbound probes



Step 3: degrade RNA



Step 4: capture probe and reporter to matching array address



Alternate Probe form: Reporter bound separately to reporter linker:

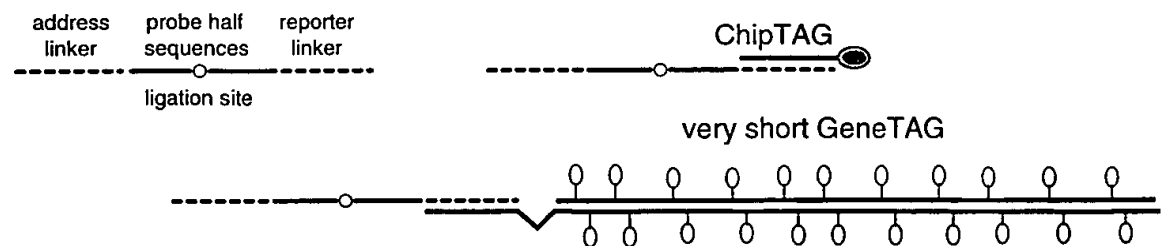


Fig. 9